

1           1.    A method comprising:  
2                   forming a phase change memory pore including a  
3 breakdown layer and increasing the likelihood that the  
4 breakdown will occur in one region rather than another  
5 region of the layer.

1           2.    The method of claim 1 including forming a phase  
2 change memory pore by:  
3                   forming an electrode over a substrate;  
4                   forming a dielectric layer with an aperture; and  
5                   forming a breakdown layer over said electrode in  
6 said aperture.

1           3.    The method of claim 2 including forming a phase  
2 change material over said layer and coupling said phase  
3 change material between an upper conductive line and a  
4 lower conductive line.

1           4.    The method of claim 3 including coupling a lower  
2 conductive line to said electrode through a selector  
3 device.

1           5.    The method of claim 1 including ion implanting a  
2 portion of said layer to change the likelihood of breakdown  
3 in that implanted portion relative to an unimplanted  
4 portion of said layer.

1           6.    The method of claim 5 including implanting at an  
2 angle.

1           7.    The method of claim 6 including forming a pore  
2 defined in an insulator and implanting at an angle such  
3 that said insulator acts as a mask to said ion  
4 implantation.

1           8.    The method of claim 1 including forming a  
2 relatively centrally located within said pore that is more  
3 likely to breakdown.

1           9.    The method of claim 1 including forming a  
2 relatively peripherally located region in said pore that is  
3 more likely to breakdown.

1           10.   The method of claim 1 including damaging one  
2 region of said layer to change the likelihood that a  
3 breakdown will occur in that region relative to another  
4 region.

1           11.   A memory comprising:  
2                a breakdown layer between a pair of electrodes,  
3 said breakdown layer being ion implanted to increase the  
4 likelihood that breakdown will occur in one region rather  
5 than another region of said layer.

1        12. The memory of claim 11 wherein said memory is a  
2 phase change memory including a phase change material  
3 between said electrodes.

1        13. The memory of claim 12 wherein said phase change  
2 material is a chalcogenide.

1        14. The memory of claim 13 including a substrate and  
2 a dielectric layer over said substrate with an aperture  
3 formed therein, an electrode being positioned at the bottom  
4 of said aperture and said breakdown layer being positioned  
5 over said electrode in said aperture.

1        15. The memory of claim 14 wherein said phase change  
2 material is over said breakdown layer.

1        16. The memory of claim 15 including an upper  
2 conductive line over said phase change material and a lower  
3 conductive line under said electrode.

1        17. The memory of claim 11 wherein said breakdown  
2 layer is formed of an insulator.

1        18. The memory of claim 17 wherein said insulator  
2 includes nitride.

1        19. The memory of claim 11 wherein a central portion  
2 of said layer is ion implanted and a peripheral region of  
3 said breakdown layer is not ion implanted.

1        20. A system comprising:  
2            a processor-based device;  
3            a wireless interface coupled to said processor-  
4 based device; and  
5            a semiconductor memory coupled to said device,  
6 said memory including a pair of electrodes, a breakdown  
7 layer between said pair of electrodes, said breakdown layer  
8 being ion implanted to increase the likelihood that  
9 breakdown will occur in one region rather than another  
10 region of said layer.

1        21. The system of claim 20 wherein said memory is a  
2 phase change memory including a phase change material  
3 between said electrodes.

1        22. The system of claim 21 wherein said phase change  
2 material is a chalcogenide.

1        23. A method comprising:  
2            forming a breakdown layer between a pair of  
3 electrodes and increasing the likelihood that breakdown

4 will occur in one region rather than another region of said  
5 layer.

1 24. The method of claim 23 including forming a phase  
2 change material between said electrodes.

1 25. The method of claim 23 including ion implanting  
2 said breakdown layer.

1 26. A memory comprising:  
2 a breakdown layer between a pair of electrodes,  
3 said breakdown layer having a central region and a  
4 peripheral region between said electrodes, such that  
5 breakdown is more likely to occur in one of said regions  
6 than the other of said regions.

1 27. The memory of claim 26 including a phase change  
2 material between said electrodes.

1 28. The memory of claim 27 wherein said breakdown  
2 layer is ion implanted.

1 29. The method of claim 28 including a dielectric  
2 over a substrate, said dielectric having an aperture and  
3 said breakdown layer being formed in said aperture.

1        30. The memory of claim 29 including an electrode at  
2 the bottom of said aperture and another electrode over said  
3 aperture, said phase change material being between said  
4 electrodes.